Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A system for producing an optimal supply play for allocating a supply of a component, the system comprising:

a) a computerized database containing electronically readable information related to said component, said information describing the supply and changes to the supply;

[[, said information defining variables comprising:

ω_{CS}, ω_R, ω_M, and ω_I representing weightings for customer service, revenue, margin, and inventory for said component,

γ_{CS}, γ_R, γ_M, and γ_I representing scaling factors for customer service, revenue, margin, and inventory for said component,

x_{it} is a binary variable,

δ_{it} representing a scaling factor to give preference for shipping orders on-time versus shipping late or early,

α_i representing a revenue associated with a demand i,

β_i representing a margin associated with said demand i,

c_j representing a standard cost of an item j,

u_{jkt} representing a quantity of consumed inventory,

t_{jk} representing a quantity of issued inventory,

I_{jt} representing an inventory of an item j at end of a time period t,

M representing a number of independent demands, and

T representing a number of time periods; and]]

b) a computerized supply planner that automatically produces a plurality of proposed supply [[[plan]] plans for said component using synchronized allocation with the component information in the database, wherein each of said proposed supply plans has associated supply plan values comprising:

α_i representing a revenue associated with a demand *i*,

β_i representing a margin associated with said demand *i*,

c_j representing a standard cost of an item *j*,

u_{jkt} representing a quantity of consumed inventory,

t_{jk} representing a quantity of issued inventory,

I_{jt} representing an inventory of an item *j* at end of a time period *t*,

M representing a number of independent demands, and

T representing a number of time periods;

c) data input means for accepting user input, wherein said supply planner uses said user input to define user preference values comprising

ω_{CS}, ω_R, ω_M, and ω_I representing weightings for customer service, revenue, margin, and inventory for said component,

γ_{CS}, γ_R, γ_M, and γ_I representing scaling factors for customer service, revenue, margin, and inventory for said component, and

δ_{it} representing a scaling factor to give preference for shipping orders on-time versus shipping late or early,

wherein said supply planner evaluates the plurality of proposed supply chain plans using the associated supply plan values and the user preference values through an objective function comprising:

[[MAX]]

$$\left[\omega_{CS}\gamma_{CS}\sum_{i=1}^{M}\sum_{t=1}^{T}\delta_{it}X_{it}+\omega_R\gamma_R\sum_{i=1}^{M}\left(\alpha_i\sum_{t=1}^{T}X_{it}\right)+\omega_M\gamma_M\sum_{i=1}^{M}\left(\beta_i\sum_{t=1}^{T}X_{it}\right)\right.$$

$$\left.-\omega_I\gamma_I\left(\sum_{j=1}^{M}\left(c_j\sum_{t=1}^{T}I_{jt}\right)+\sum_{j=1}^{M}\left(c_j\sum_{k=1}^{T}\left(t_{jk}-\sum_{t=1}^{T}u_{jkt}\right)\right)\right)\right],$$

where x_{it} is a binary variable;

e) wherein said supply planner selects the optimal supply plan from the proposed plurality of proposed supply chain plans, wherein said optimal supply plan maximizes the objective function.

Claim 2 (cancelled)

Claim 3 (previously presented): The system of claim 1 further comprising a computerized resource optimizer, wherein said resource optimizer uses automated matched sets logic.

Claim 4 (previously presented): The system of claim 1 further comprising a computerized product attribute defining tool.

Claim 5 (previously presented): The system of claim 4, wherein said computerized product attribute defining tool that accepts engineering specification information from a user and automatically defines the component by using the electronically readable engineering specification information.

Claim 6 (previously presented): The system of claim 1 further including a computerized constraint-based master planner, whereby said constraint-based master planner allows a user to automatically specify one or more electronically readable goals to be considered by the computerized supply planner.

Claim 7 (previously presented): The system of claim 6, wherein said goals comprise:
a maximization of revenue,
a maximization of margin,
a maximization of inventory, or
a maximization of customer service.

Claim 8 (previously presented): The system of claim 1 further comprising a computerized product change analyzer, wherein said product change analyzer automatically compares the effects of a change to the supply at different times.

Claim 9 (previously presented): The system of claim 1 further comprising a computerized comparer, wherein said comparer automatically assesses differences in an electronically readable first supply plan for the supply of the component and an electronically readable second supply plan for a modified supply of the component.

Claim 10 (previously presented): The system of claim 1 further comprising a computerized resource requirements planner, wherein said resource requirements planner automatically suggests a change in the supply to address a shortage identified by the supply planner.

Claim 11 (previously presented): The system of claim 1 further comprising a computerized finite resource planner wherein said finite resource planner automatically suggests an optimal use of the supply to address a shortage identified by the computerized supply planner.

Claim 12 (previously presented): The system of claim 1 further comprising a computerized customer promiser, wherein said computerized customer promiser:

automatically determines a remainder of the supply following implementation of the supply plan, and

automatically assesses feasibility of a new order using on the remainder.

Claim 13 (previously presented): The system of claim 1 further comprising a computerized interactive master scheduler.

Claim 14 (previously presented): The system of claim 1, wherein said database comprises electronically readable input data, electronically readable user-specified data, and electronically readable output data.

Claim 15 (currently amended): A method for allocating a supply of a component, the method comprising the steps of:

a) providing a computer to a user;

b) said computer forming a component database [[on said computer]], said component database containing electronically readable information related to said component, said information describing [[the]] a supply of said component and changes to the component supply [[, said information defining variables comprising:

ω_{CS}, ω_R, ω_M, and ω_I representing weightings for customer service, revenue, margin, and inventory for said component,

γ_{CS}, γ_R, γ_M, and γ_I representing scaling factors for customer service, revenue, margin, and inventory for said component,

x_{it} is a binary variable,

δ_{it} representing a scaling factor to give preference for shipping orders on-time versus shipping late or early,

α_i representing a revenue associated with a demand i,

β_i representing a margin associated with said demand i,

c_j representing a standard cost of an item j,

u_{jkt} representing a quantity of consumed inventory,

t_{jk} representing a quantity of issued inventory,

I_{jt} representing an inventory of an item j at end of a time period t,

M representing a number of independent demands, and

T representing a number of time periods; and]];

[[b)]] c) said computer [[automatically]] producing [[an electronically readable]] a plurality of proposed supply [[[plan]] plans for said component using synchronized allocation said computer using synchronized allocation with the information in the component database, wherein each of said proposed supply plans has associated supply plan values comprising:

α_i representing a revenue associated with a demand i,

β_i representing a margin associated with said demand i,

c_j representing a standard cost of an item j,

u_{jkt} representing a quantity of consumed inventory,

t_{jk} representing a quantity of issued inventory,

I_{jt} representing an inventory of an item j at end of a time period t,

M representing a number of independent demands, and

T representing a number of time periods;

d) said computer accepting user input and using said user input to define user preference values comprising

ω_{CS}, ω_R, ω_M, and ω_I representing weightings for customer service, revenue, margin, and inventory for said component,

γ_{CS}, γ_R, γ_M, and γ_I representing scaling factors for customer service, revenue, margin, and inventory for said component, and

δ_{it} representing a scaling factor to give preference for shipping orders on-time versus shipping late or early,

e) said computer evaluating the plurality of proposed supply chain plans using the associated supply plan values and the user preference values through an objective function comprising:

[[MAX]]

$$\left[\omega_{cs}\gamma_{cs}\sum_{i=1}^{M}\sum_{t=1}^{T}\delta_{it}X_{it}+\omega_R\gamma_R\sum_{i=1}^{M}\left(\alpha_i\sum_{t=1}^{T}X_{it}\right)+\omega_M\gamma_M\sum_{i=1}^{M}\left(\beta_i\sum_{t=1}^{T}X_{it}\right)\right.$$

$$\left.-\omega_I\gamma_I\left(\sum_{j=1}^{M}\left(c_j\sum_{t=1}^{T}I_{jt}\right)+\sum_{j=1}^{M}\left(c_j\sum_{k=1}^{T}\left(t_{jk}-\sum_{t=1}^{T}u_{jkt}\right)\right)\right)\right],$$

where x_{it} is a binary variable;

f) said computer selecting the optimal supply plan from the proposed plurality of proposed supply chain plans, wherein said optimal supply plan maximizes the objective function; and

g) said computer allocating said computer using said supply plan.

Claim 16 (previously presented): The method of claim 15, wherein said computer automatically defines the component using an electronically readable engineering specification.

Claim 17 (cancelled)

Claim 18 (previously presented): The method of claim 15 further comprising the step of computerized optimizing of the supply using automated matched sets logic.

Claim 19 (previously presented): The method of claim 15 further comprising the step of computerized specifying of one or more goals to be considered in the step of producing a supply plan.

Claim 20 (previously presented): The method of claim 15 further comprising the steps of:

a) computerized modifying of said database to reflect a change in the supply at a first time;

b) computerized preparing of a first supply plan for said first modified database;

c) computerized modifying of said database to reflect the change in the supply at a second time;

d) computerized preparing of a second supply plan for said second modified database; and

e) computerized comparing of the effects of said first and said second supply plans.

Claim 21 (previously presented): The method of claim 15 further comprising the steps of

a) computerized modifying of said database to reflect a change in the supply;

b) computerized preparing of a modified supply plan for said modified database; and

c) computerized comparing of the effects said supply plan and said modified supply plan.

Claim 22 (previously presented): The method of claim 15 further comprising the steps of:

a) computerized identifying of a shortage in the supply created in said supply plan; and

b) computerized modifying of use of said supply to address said shortage.

Claim 23 (previously presented): The method of claim 15 further comprising the steps of:

a) computerized identifying a shortage in the supply created in said supply plan; and

b) computerized modifying said supply plan address said shortage.

Claim 24 (previously presented): The method of claim 15 further comprising the steps of

a) computerized determining of a remainder of the supply following implementation of the supply plan, and

b) computerized accessing of feasibility of a new order using the remainder.

Claim 25 (currently amended): A program storage device readable by a machine, tangibly embodying a program of instructions executable by a machine to perform method <u>for selecting an optimal supply allocation plan for a component, said method comprising the</u> steps of:

a) [[said machine]] forming an electronically readable <u>component</u> database containing information related to a supply of [[a]] <u>the</u> component, said information describing the supply and changes to the supply [[, said information defining variables comprising:

ω_{CS}, ω_R, ω_M, and ω_I representing weightings for customer service, revenue, margin, and inventory for said component,

γ_{CS}, γ_R, γ_M, and γ_I representing scaling factors for customer service, revenue, margin, and inventory for said component,

x_{it} is a binary variable,

δ_{it} representing a scaling factor to give preference for shipping orders on-time versus shipping late or early,

α_i representing a revenue associated with a demand i,

β_i representing a margin associated with said demand i,

c_j representing a standard cost of an item j,

u_{jkt} representing a quantity of consumed inventory,

t_{jk} representing a quantity of issued inventory,

I_{jt} representing an inventory of an item j at end of a time period t,

M representing a number of independent demands, and

T representing a number of time periods; and]];

b) using synchronized allocation and matched sets logic with the information in the component database to [[automatically]] produce a plurality of proposed supply [[[plan]] plans for said component [[supply]], wherein each of said proposed supply plans has associated supply plan values comprising:

α_i representing a revenue associated with a demand i,

β_i representing a margin associated with said demand i,

c_j representing a standard cost of an item j,

u_{jkt} representing a quantity of consumed inventory,

t_{jk} representing a quantity of issued inventory,

I_{jt} representing an inventory of an item j at end of a time period t,

M representing a number of independent demands, and

T representing a number of time periods;

c) accepting user input and using said user input to define user preference values comprising

ω_{CS}, ω_R, ω_M, and ω_I representing weightings for customer service, revenue, margin, and inventory for said component,

γ_{CS}, γ_R, γ_M, and γ_I representing scaling factors for customer service, revenue, margin, and inventory for said component, and

δ_{it} representing a scaling factor to give preference for shipping orders on-time versus shipping late or early,

d) evaluating the plurality of proposed supply chain plans using the associated supply plan values and the user preference values through an objective function comprising:

[[MAX]]

$$\left[\omega_{cs}\gamma_{cs}\sum_{i=1}^{M}\sum_{t=1}^{T}\delta_{it}X_{it}+\omega_R\gamma_R\sum_{i=1}^{M}\left(\alpha_i\sum_{t=1}^{T}X_{it}\right)+\omega_M\gamma_M\sum_{i=1}^{M}\left(\beta_i\sum_{t=1}^{T}X_{it}\right)\right.$$

$$\left.-\omega_I\gamma_I\left(\sum_{j=1}^{M}\left(c_j\sum_{t=1}^{T}I_{jt}\right)+\sum_{j=1}^{M}\left(c_j\sum_{k=1}^{T}\left(t_{jk}-\sum_{t=1}^{T}u_{jkt}\right)\right)\right)\right],$$

where x_{it} is a binary variable, and

e) selecting the optimal supply plan from the proposed plurality of proposed supply chain plans, wherein the optimal supply plan maximizes the objective function[[said machine automatically allocating said supply using said supply plan]].

Claim 26 (previously presented): The program storage device readable of claim 25, wherein the method steps performed by said program on instructions further comprise said machine automatically defining the component by using an engineering specification.

Claim 27 (previously presented): The program storage device readable of claim 25, wherein the performed method steps performed by said program instructions further comprise:

a) said machine automatically identifying a shortage in the supply created in said supply plan; and

b) said machine automatically modifying said supply plan to address said shortage.